REMARKS

Claims 1–11 have been amended and are pending in the application. Applicants reserve the right to pursue the original claims and other claims in this and other applications.

Claims 1, 2, 10, and 11 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as their invention. Claims 1, 2, 10, and 11 have been amended as shown above to address the concerns raised in the Office Action. Specifically, claims 1, 2, 10, and 11 have been amended by replacing the allegedly indefinite claim language regarding the first and second distances with the limitation of "acquiring evaluation values from a positive peak and a negative peak of said derivative waveform, said positive peak and negative peak corresponding to each peak of said profile waveform." Thus, Applicants respectfully request that this rejection be withdrawn and the claims allowed.

Claims 1, 2, 10, and 11 are also rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement for allegedly containing subject matter that was not described in the specification in such a way as to enable one skilled in the relevant art to which it pertains, or with which it is most nearly connected, to make and use the claimed invention. Claims 1, 2, 10, and 11 have been amended as shown above to address the concerns raised in the Office Action. Specifically, claims 1, 2, 10, and 11 have been amended by removing the allegedly nonenabling description relating to "both side." Thus, Applicants respectfully request that this rejection be withdrawn and the claims allowed.

Finally, claims 1–11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Dudley. This rejection is respectfully traversed.

Claim 11 recites "[a] charged particle beam apparatus comprising . . . an acquiring means for acquiring evaluation values from a positive peak and a negative peak of said derivative waveform, . . . a determining means for determining the positions of line and space patterns based

on a comparison between the magnitudes of said evaluation values . . . and a determining means for determining the target location for measurement of said sample . . . ." The Office Action states that claim 11 is obvious because Dudley discloses constructing a derivative waveform from SEM beam scan of a structure in an integrated circuit and using profiling logic 336 to obtain a profile of the scanned structure even though Dudley "fails to teach comparing" the magnitudes of evaluation values to determine the position of line and space patterns on a sample surface. Reconsideration is requested.

Applicants' invention accurately distinguishes line and space patterns on a sample by comparing the magnitudes of evaluation values acquired from the positive and negative peaks of a derivative waveform of a profile waveform.

In contrast, the Dudley system relates to constructing a profile of a particular structure in an integrated circuit to determine whether the profile dimensions or cross section meets acceptable standards. ([1, 53–55], [4, 26]). According to Dudley, a profile of the structure is compared to a "target profile to determine whether the slopes of the left and right edge widths are within acceptable limits as well as whether the shape of the profile is also acceptable . . . ." ([6, 17–22], [5, 46–53]). Dudley only measures the distance between the peak to foot (Fig. 3B, 163 and 166) of the distance between the outer edge of the left peak and the left boundary of the center distance (LEW0–5) and the outer edge of the right peak and the right boundary of the center distance (REW0–5). Dudley does not teach, suggest, or otherwise render obvious distinguishing line and space patterns on a sample by comparing the magnitudes of evaluation values acquired from the positive and negative peaks of a derivative waveform of a profile waveform.

The accurate distinction of line and space patterns on a sample surface is an important aspect of the claimed invention. Based on the "information about line and space patterns on the sample" at a certain location, the target location for measuring the sample pattern size can be fine-tuned by comparing the determined concavity and convexity profile with a predetermined concavity

and convexity profile. Dudley does not teach or suggest using the concavity and convexity of a sample surface to determine the target location for measurement of a sample pattern size.

In contrast, Dudley only measures a cross-sectional shape of a sample, and does not identify the position of a pattern on the sample. Moreover, according to Dudley, a cross-sectional profile of a line pattern could be created even if the actual line and space patterns on the sample surface are not distinguished. As an illustration, suppose for example that a space pattern (concave portion) is formed on a substrate (flat plane) and a profile is then acquired from the substrate. The profile waveform will be identical to that of a line pattern (convex portion) formed on the substrate.

Because Dudley does not teach, suggest, or otherwise render obvious the means for acquiring evaluation values from a positive peak and a negative peak of said derivative waveform, determining the positions of line and space patterns based on a comparison between the magnitudes of said evaluation values, and determining the target location for measurement of said sample, the rejection of claim 11 should be withdrawn and the claim allowed.

Claims 1, 2, and 10 likewise disclose methods for acquiring evaluation values from a positive peak and a negative peak of said derivative waveform, determining the positions of line and space patterns based on a comparison between the magnitudes of said evaluation values, and determining the target location for measurement of said sample. Accordingly, the rejection of claims 1, 2, and 10 should be withdrawn for at least the reasons stated above with respect to claim 11 and on their own merits. Claims 3–9 depend directly or indirectly on claims 1 or 2 and are allowable over Dudley for at least the reasons stated above with respect to claims 1 or 2 and on their own merits. Therefore, the rejection of claims 1–11 should be withdrawn and the claims allowed.

In view of the above amendment, Applicants believes the pending application is in condition for allowance.

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